In re application:
Hiroshi Dairiki et al.
Application No. 10/523,106
Application Filed: February 3, 2005
For: AGRICULTURAL CHEMICAL COMPOSITION IN GRANULAR FORM

DECLARATION UNDER 37 CFR 1. 132

Honorable Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, Virginia 22314

Sir:

     I, Seizo Hashimoto, am a researcher in the field of
agrochemical formulation. I am a Japanese citizen, and I
hereby declare and state that I have technical knowledge
relating to the subject application.

     I declare that I received a graduate degree as Master
of Engineering in March, 1999, from the Graduate School of
Kyushu University.

     I also declare that I have been employed by NIPPON
SODA CO., LTD., the Assignee of this application, since 2002
and that I am presently working as a researcher for Odawara
Research Center of the Assignee, Odawara-city, Kanagawa
prefecture, Japan.

     I further declare that I have read the entire contents
of the Office Action issued on November 23, 2009 against the
above patent application, and that I have read and am
familiar with the references cited in the Office Action by
the Examiner.

     I declare further that I conducted the following
experiment and that the test results are true and correct to
the best of my knowledge.

     I understand that Claim 1 of the subject application
is currently amended to recite "a sodium lignosulfonate
surfactant" as an indispensable component of the claimed
granulated pesticidal composition. Relative to the
composition recited in the amended claims, I indicate the
following results of a comparative experiment.

Among the granulated compositions indicated in Table 1, Sample 1 containing sodium lignosulfonate corresponds to the composition recited in amended Claim 1, while Sample 2 containing calcium lignosulfonate is a comparative example.

Table 1: Formulation of the Samples

Ingredients	Trade name	Sample 1	Sample 2
Cyflufenamid	–	3.43	3.43
Triflumizole	–	15.39	15.39
Potassium chloride	–	10	10
Sodium lignosulfonate	AGRHOsp-33D	1.78	–
Polyoxyethylene tristyrylphenyl ether sulfate ammonium salt		6.22	–
Calcium lignosulfonate	NK-RX-D	–	1.6
Polyoxyethylene tristyrylphenyl ether sulfate ammonium salt	SORPOL 7290-P	–	7
Sodium dodecyl benzenesulfonate	LUNOX P-65L	0.5	0.5
Urea	–	1	1
Clay	Crown Clay	balance	balance
Total		100	100

(given in percentage by weight)

Sample 1 in the table includes 8% by weight of AGRHOsp-33D, which contains sodium lignosulfonate and polyoxyethylene tristyrylphenyl ether sulfate ammonium salt in the ratio of 2:7. Sample 2 includes 7% by weight of SORPOL 7290-P, 80% of which corresponds to polyoxyethylene tristyrylphenyl ether sulfate ammonium salt. Samples 1 and 2 were prepared by substantially the same procedure as stated in the previous declaration dated June 19, 2008, except for the following points.

In preparation of Sample 2, after addition of water to the mixture of the components, a part of water was observed to separate from the composition when kneading it. Extrusion of the composition was conducted after distilling the separate water in a thermostatic oven at 40°C. Further, adhesion between granules was observed in extruding granulation in the preparation of Sample 2. On the other

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hand, such problems were not observed in the preparation of Sample 1. The comparison of the samples is shown in the following table.

Table 2: Preparation of the samples

	Sample 1	Sample 2
Kneading step	No problem	Separation of water was observed
Extrusion step	No problem	Adhesion between granules was observed
Drying step	No problem	No problem

Dispersibility in water of the samples was assessed in the following procedure. Test tubes were charged with 100 mL of water (hardness: 36 mg/L) to form a water column of ca. 180 mm high from the bottom of the tubes leaving an open space of ca. 30 mL at the top thereof. The sample prepared as stated above was slowly added into the test tube and assessed for the following properties.

(1) Self-dispersibility:

The granules of Sample 1 started to disperse in the water column before reaching a depth of ca. 100 mm from the surface. On the other hand, self-dispersion of the granules of Sample 2 was not observed.

(2) Number of tube inversions required for dispersion in water:

The granules of Sample 1 were completely dispersed by 8 inversions of the test tube, while Sample 2 required 31 inversions. When the samples were completely dispersed by invention of the test tube, volume of the foam layer occurring on the surface of water was measured. The volumes of the foam layer in Samples 1 and 2 were 9 ml and 16 ml respectively.

(3) Sediment volume:

After completion of the assessment described above, the tubes were repeatedly inversed an additional 30 times at

a rate of once per 2 seconds, and then the volume of sediment formed was measured at 30 minutes, 2 hours and 24 hours after the inversions. Formation of sediments (0.1 ml) was observed in both Samples 1 and 2 at 24 hours after the inversions. To completely disperse the sediments again, Sample 1 required 3 inversions of the test tube, while Sample 2 required 4 inversions.

(4) Aggregability:

At the time for assessing sediment volume stated above, aggregation level was also assessed in visual evaluation by putting light to the backside of the dispersions. The assessment was indicated in score by defining the minimum aggregation level that is not allowable as 2.0. The aggregation levels both of the samples were confirmed to be allowable.

The results of the assessment stated above are summarized in Table 3.

Table 3: Dispersibility of the samples

	Sample 1	Sample 2
Self-dispersibility	Rapid dispersing	Not observed
Number of tube inversions required for dispersion in water	8	31
Amount of foam layer (ml)	9	16
Sediment volume at 30 min. (ml)	0.10	0.01
Sediment volume at 2 hr. (ml)	0.10	0.04
Sediment volume at 24 hr. (ml)	0.10	0.10
Number of tube inversions required for dispersion of the sediment formed	3	4
Aggregation level at 30 min.	1.5	0.5
Aggregation level at 2 hr.	1	0.5
Aggregation level at 24 hr.	0.5	1

Among the samples indicated above, Sample 1 is a granulated composition of the subject invention, while Samples 2 to 4 are comparative examples. The results indicated above show the effect of the sodium lignosulfonate on dispersibility of granulated pesticidal compositions. Namely, the composition of Sample 1 has excellent properties of self-dispersibility, while self-dispersibility was not observed in Sample 2. Further, the properties of Sample 1 are superior to those of Sample 2 in other assessments: number of tube inversions required for dispersion in water.

In light of the assessments (1) to (4), Sample 1 exhibits significantly excellent dispersibility, compared with that of Sample 2. Dispersibility of formulated granules in water is one of most important properties for water-dispersible pesticidal compositions. Therefore, I believe that the experiment clearly indicates that the claimed invention provides an advantageous effect.

I declare further that all statements made herein of my own knowledge are true and that all statements made on

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the basis of information and belief are believed to be true;
and further that these statements were made with the
knowledge that willful false statements and the like so made
are punishable by fine or imprisonment, or both, under
Section 1001 of Title 18 of the United States Code and that
such willful false statements may jeopardize the validity of
the application or any patents issued thereon.

2010 '05. 07.   _Seizo Hashimoto_

Date   Seizo Hashimoto